From: Gerety, Christopher
To: Carol Haines
Cc: Hudson, Anthony; Nix, Keith; Whitehurst, Stacy
Subject: Re: [External] FW: Core Scientific/TNMP Executive Meeting
Date: Friday, April 29, 2022 5:55:30 PM
Attachments: image001.png

Yes, will get it out shortly.

Chris Gerety
505-280-3310

From: Carol Haines <chaines@corescientific.com>
Sent: Friday, April 29, 2022 4:42:49 PM
To: Gerety, Christopher <Christopher.Gerety@tnmp.com>
Cc: Hudson, Anthony <Anthony.Hudson@tnmp.com>; Nix, Keith <Keith.Nix@tnmp.com>; Whitehurst, Stacy <Stacy.Whitehurst@tnmp.com>
Subject: Re: [External] FW: Core Scientific/TNMP Executive Meeting

Yes. That works for our team. Will you send an invite at your convenience, please?

Thanks

Sent from my iPhone

> On Apr 29, 2022, at 5:13 PM, Gerety, Christopher <Christopher.Gerety@tnmp.com> wrote:
>
> Greetings Carol,
>
> Does Monday at 3PM work for you?
>
> Thank you
> Chris Gerety
> 505-280-3310
>
> ---
>
> **From:** Carol Haines <chaines@corescientific.com>
> **Sent:** Thursday, April 28, 2022 12:43 PM
> **To:** Gerety, Christopher <Christopher.Gerety@tnmp.com>
> **Subject:** [External] FW: Core Scientific/TNMP Executive Meeting
>
> **
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> **
>
> **
> **Is this a phishing email? - Look again!**
> This email is from chaines@corescientific.com - do you know them?
> **
>
> Hi Chris,
>
> It's nice to meet you. Our CEO will be reaching out to set up a call with Mr. Walker. In the meantime, I am hoping to schedule a call with you or whoever you deem appropriate for our working team to better understanding the timelines associated with our Cedarvale and Cottonwood projects. We have equipment and construction materials showing up to our job sites every day and are unsure how to proceed given the current environment.
>
> Do you have time for a call tomorrow?
>
> Thanks,
>
> **CAROL HAINES**
> SVP POWER & SUSTAINABILITY
> **Core Scientific**
> chaines@corescientific.com
> **440.532.0057**

From: John Bick <jbick@prioritypower.com>
Sent: Wednesday, April 27, 2022 9:24 AM
To: Gerety, Christopher <Christopher.Gerety@tnmp.com>; Carol Haines <chaines@corescientific.com>
Cc: Blackwell, Linny <Linny.Blackwell@tnmp.com>; Walker, Neal <Neal.Walker@tnmp.com>; Nix, Keith <Keith.Nix@tnmp.com>
Subject: Re: Core Scientific/TNMP Executive Meeting

[EXTERNAL] Use caution when opening attachments or links.

Thanks, Chris.

Looping in Carol Haines, SVP Power & Sustainability for Core. Carol will follow up with Linny.

John J. Bick
Sent from my iPhone

> On Apr 27, 2022, at 8:19 AM, Gerety, Christopher <Christopher.Gerety@tnmp.com> wrote:
>
> [EXTERNAL ORIGIN – do not open attachments or links until sender and content are confirmed safe]
>
> John, please reach out to Linny Blackwell to coordinate a meeting time between TNMP President Neal Walker and the Core Scientific CEO.
>
> Linny Blackwell
> 214-222-4103
> Linny.blackwell@tnmp.com
> 577 North Garden Ridge
> Lewisville, TX 75067
>
> Neal Walker
> 214-222-4102
> neal.walker@tnmp.com
>
> Thank you
> Chris
> 505-280-3310

From: Gerety, Christopher
To: Carol Haines; Nix, Keith; Hudson, Anthony
Cc: Weston Adams; Kelsey Gallagher
Subject: RE: [External] Follow Up - Core Scientific
Date: Tuesday, June 28, 2022 9:34:41 AM
Attachments: image001.png
PPM Cedarvale Bitcoin System Impact Study_062822_Redacted.pdf

Greetings Carol,

The attached Cedarvale study was submitted to the ERCOT Large Load Group early this morning and Cottonwood will be submitted before COB today. We will let you know as soon as we have ERCOTs review back.

There is no issue serving the PME load amounts from the transmission point of delivery before the capacitor banks are installed and in-service at both Cedarvale and Cottonwood.

Let me know if you have any further questions.

Thanks
Chris
505-280-3310

From: Carol Haines <chaines@corescientific.com>
Sent: Monday, June 27, 2022 4:17 PM
To: Gerety, Christopher <Christopher.Gerety@tnmp.com>; Nix, Keith <Keith.Nix@tnmp.com>; Hudson, Anthony <Anthony.Hudson@tnmp.com>
Cc: Weston Adams <wadams@corescientific.com>; Kelsey Gallagher <kgallagher@corescientific.com>
Subject: RE: [External] Follow Up - Core Scientific
Importance: High

Hi Chris, Keith and Tony,

I am still looking for clarity on the questions below.

Do we need to wait for the cap bank work to be completed to move the PME load over to transmission?

Can we please get an update on the restudy and information being submitted to ERCOT? Has this been resubmitted and if so, when? We have buildings fully erected with power to them and units ready to turn on. We need to know when we will be able to ramp up. Every day we go without answers from you costs us a great deal of money with construction and lost revenue. We have customer obligations to fulfill and are unable to even provide them with a timeline at this point.

Thanks,

CAROL HAINES
SVP POWER & SUSTAINABILITY
Core Scientific
chaines@corescientific.com
440.532.0057

From: Carol Haines
Sent: Friday, June 17, 2022 9:41 AM
To: Gerety, Christopher <Christopher.Gerety@tnmp.com>
Cc: Hudson, Anthony <Anthony.Hudson@tnmp.com>; Nix, Keith <Keith.Nix@tnmp.com>; Weston Adams <wadams@corescientific.com>; Kelsey Gallagher <kgallagher@corescientific.com>
Subject: Re: [External] Follow Up - Core Scientific

Do we need to wait for the cap bank work to be completed to move the PME load over to transmission?

> On Jun 17, 2022, at 9:35 AM, Gerety, Christopher <Christopher.Gerety@tnmp.com> wrote:
>
> [EXTERNAL] Use caution when opening attachments or links.
>
> Good Morning Carol,
>
> With regard to the timing of the transmission terminals at Cedarvale and Cottonwood, TNMP has those scheduled to be energized on 6/28 and 7/13 respectively. The cap banks for both yards will follow in July and August. I am not able to provide an exact or specific date because we are having trouble with the manufacturers of the banks and switching devices giving accurate delivery timing. We are continuing to push them for the soonest delivery possible.
>
> There is no facility issue with moving the PME load over to the transmission service upon energization.
>
> Tony, will need to comment on status of resubmission of the study for ERCOT's review.
>
> Thanks
> Chris
> 505-280-3310
>
> ---
>
> **From:** Carol Haines <chaines@corescientific.com>
> **Sent:** Friday, June 17, 2022 8:18 AM
> **To:** Hudson, Anthony <Anthony.Hudson@tnmp.com>; Gerety, Christopher

<Christopher.Gerety@tnmp.com>; Nix, Keith <Keith.Nix@tnmp.com>
Cc: Weston Adams <wadams@corescientific.com>; Kelsey Gallagher
<kgallagher@corescientific.com>
Subject: [External] Follow Up - Core Scientific

****

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****

Chris, Tony and Keith,

We need an update on the restudy and information being submitted to ERCOT. Has this been resubmitted and if so, when? Also, can you please answer the question below. We have buildings fully erected with power to them and units ready to turn on. We need to know when we will be able to ramp up. Every day we go without answers from you costs us a great deal of money with construction and lost revenue. We have customer obligations to fulfill and are unable to even provide them with a timeline at this point.

Thanks,

CAROL HAINES
SVP POWER & SUSTAINABILITY
Core Scientific
chaines@corescientific.com
440.532.0057

From: Carol Haines
Sent: Wednesday, June 15, 2022 1:19 PM
To: Hudson, Anthony <Anthony.Hudson@tnmp.com>
Cc: Weston Adams <wadams@corescientific.com>; Kelsey Gallagher

<kgallagher@corescientific.com>
Subject: Question on PMEs vs Distribution
Importance: High

Hi Tony,

We are planning to have our first Cedarvale transmission transformer in service by the end of July. Are we able to move the PME load over to distribution as soon as the distribution is available?

Thanks,

CAROL HAINES
SVP POWER & SUSTAINABILITY
Core Scientific
chaines@corescientific.com
440.532.0057

TNMP™

Priority Power Management, LLC

Cedarvale Bitcoin

System Impact Study

June 2022

Table of Contents

1 Executive Summary

In June 2021, Priority Power Management, LLC entered into an agreement with TNMP to study the impact of providing transmission service to their proposed bitcoin mine data center facility in Ward County, TX (Project). The Customer has estimated the electrical demand of the Project to be 700 MW. The Customer's proposed location for the Project is adjacent to TNMP's Cedarvale substation, so the transmission point of delivery (POD) for the Project will be located at Cedarvale substation. The customer has requested a July 2022 in-service date for the POD.

TNMP processed one other request for transmission service to a large load just prior to receiving the request for the Project and processed two other requests for transmission service to large loads in parallel with the Project, totaling 730 MW not including the Project, planned within the same general area of TNMP's West Texas transmission system as that of the proposed location for the Project. Therefore, it was required for this study to consider a total new load of 1.621 GW (921 MW load studied either just prior to or in parallel with the Project + 700 MW proposed Project load).

The steady state results indicate a total of 480 MVAR static reactive support, in four blocks of 120 MVAR, will be needed at the POD to maintain healthy transmission voltages.

The steady state results indicate numerous transmission system upgrades are needed to accommodate the Project along with the other three large loads included in the study. Corresponding load limits have been identified as part of the study process. It is important to note the limits presented in this study are based on a snapshot in time simulations and do not intend to provide any insight into the hourly performance of the proposed load and the congestion/curtailment risks therein.

System improvements needed within TNMP's transmission system to accommodate all proposed end-user facilities considered in this study, estimated timing of those projects, and associated most constraining Project load limit are summarized below in Table 8-1.

Table 8-1: TNMP System Improvements Identified

System Improvement	Estimated Timing	Project Load Limit (MW)	Day/Night Constraint
Cut Wink – Bone Springs 138 kV line into Cholla station	12/1/22	170	Day
Oncor to build new Consavvy switching station with two 345-138 kV transformers.	Dec 2022	0	Night
Cut Wink – Bone Springs 138 kV line into Cholla station	12/1/22	173	Night
Upgrade Wink – All American – Monument Draw – Cholla 138 kV line to 3000 Ampere	6/1/23	237	Both
Oncor to upgrade Wolf – Moss 138 kV line	Dec 2023	397	Day
345 kV interconnection at Cedarvale	Mid 2025	397	Both
Bearkat – North McCamey – Cedarvale/Sand Lake 345 kV double circuit line	Jun 2026	397	Day
Bearkat – North McCamey – Cedarvale/Sand Lake 345 kV double circuit line	Jun 2026	234	Night

TNMP performed stability simulations of (1) load reject scenario involving the Project load and (2) the critical most contingency identified from the steady state analysis to result in post-contingency voltage collapse within the far West Texas system at higher load levels than were simulated in this study. The stability simulations were performed for the peak and off-peak scenarios with all minor system upgrades but none of the RPG level system upgrades identified from the steady state analysis. The Project load was set at 397 MW (aggregate of all proposed end-user facilities operating at 1318 MW) in the 2024 summer peak case and at a load level of 234 MW (aggregate of all proposed end-user facilities set at

1023 MW) in the 2025 HWLL case. UVLS was simulated at each of the four PODs serving the proposed end-user facilities. Conclusions from the stability analysis are as follows:

1. No angular stability issues were observed.
2. The simulations indicate introduction of large load data centers within the study area significantly worsen system low voltages that occur post-fault due to stalling of native industrial motors and will require installation of UVLS at the POD of each large load data center.
3. Significant over-voltages can occur depending on the timing of tripping stalled motors at the various industrial load sites within TNMP's West Texas systems during undervoltage conditions versus the timing of UVLS tripping for large data center loads. However, the simulations indicate these over-voltages can be rapidly mitigated through the use of over-voltage tripping of capacitor banks specified for installation at the various PODs for large data center loads.
4. There are no voltage stability or real power oscillation issues involved with **Redacted**, which is thought to be the worst case P7 contingency within the study area.
5. There are no expected frequency response issues associated with load rejection. Frequency remains well within the 60.4 Hz criteria utilized within the ERCOT Interconnection with loss up to 397 MW during summer peak and loss up to 234 MW during off-peak at the Project site.
6. It will be necessary to conduct similar stability simulations at higher aggregate data center load levels, ultimately at the total requested load level, as TNMP and other TSPs develop system upgrade projects that allow for operation at load levels beyond the limits identified in this study.

2 Introduction

In June 2021, Priority Power Management, LLC (Customer) entered into an agreement with TNMP to study the impact of providing transmission service to their proposed bitcoin mine data center facility in Ward County, TX (referred to herein as Project). The Customer has estimated the electrical demand of the Project to be 700 MW (Load Addition). The Customer's proposed location for the Project is adjacent to TNMP's Cedarvale substation, so the transmission point of delivery (POD) for the Project will be located at Cedarvale substation. The Customer has requested a July 2022 in-service date for the POD.

TNMP processed one other request for transmission service to a large load just prior to receiving the request for the Load Addition and processed two other requests for transmission service to large loads in parallel with the Load Addition, totaling 730 MW not including the Load Addition, planned within the same general area of TNMP's West Texas transmission system as that of the proposed location for the Load Addition. The ramp schedule provided by the customer for the Load Addition in the context of the aggregate of ramp schedules provided for the other three requests for transmission service as well as aggregate of commitments to serve new distribution load within the area is detailed in Table 2-1.

Table 2-1: Load Ramp Schedules Provided by Large Load Developers

Year	Month	Load Addition (MW)	Aggregate From All Current Requests (MW)[1]
2022	May	22	162
2022	Jun	22	224
2022	July	22	408
2022	Aug	72	561
2022	Sep	122	706
2022	Oct	172	796
2022	Nov	222	886
2022	Dec	272	976
2023	Jan	322	1141
2023	Feb	347	1226
2023	Mar	372	1263
2023	Apr	372	1263
2023	May	397	1288
2023	Jun	397	1288
2023	Jul	397	1288
2023	Aug	397	1288
2023	Sep	422	1313
2023	Oct	447	1338
2023	Nov	472	1363
2023	Dec	497	1388
2024	Jan	522	1443
2024	Feb	547	1468
2024	Mar	572	1493
2024	Apr	597	1518
2024	May	622	1543
2024	Jun	647	1568
2024	Jul	672	1593
2024	Aug	697	1618
2024	Sep	700	1621

[1] Includes the aggregate of commitments to serve bitcoin load within the area via distribution level service.

2.1 Study Purpose, Composition, and Scope

It was required for this study to consider a total new load of 1.621 GW (921 MW load studied either just prior to or in parallel with the Load Addition[1] + 700 MW Load Addition) (herein referred to as Total Load Addition).

2.1.1 Study Purpose

The first purpose of this study is to evaluate the reliability impact of the Total Load Addition on the interconnected transmission system. In that regard, the focus is on the following:

1. Recommend solutions to address loading and voltage problems within the TNMP-owned transmission network that are identified to be attributed to or compounded by the Total Load Addition.
2. Provide supporting documentation for coordinating and communicating with other transmission owners on any loading and voltage problems external to the TNMP-owned transmission network that are identified to be attributed to or compounded by the Total Load Addition.

The second purpose of this study is to identify load ramp limits associated with the Load Addition that are applicable in the interim before system improvement projects are in place to accommodate the full Load Addition.

2.1.2 Study Composition

To identify loading and voltage problems attributed to or compounded by the Total Load Addition and load ramp limits associated with the Load Addition, steady state studies were conducted with the Total Load Addition at projected ramp schedules to evaluate system performance under both normal and contingency conditions.

2.1.3 Study Scope

The normal methodology for conducting a steady state study for a new end-user load request is to simulate the full set of pertinent NERC TPL-001 planning events, pertinent ERCOT-1 contingencies, and pertinent contingencies defined in Section 4 of the ERCOT Planning Guide using benchmark cases (cases without the Load Addition and only planned system upgrades that have previously been tested through simulation and previously committed for capital expenditure) and change cases (case with the Load Addition and, again, only planned system upgrades that have previously been tested through simulation and previously committed for capital expenditure). TNMP's West Texas transmission system and the wider area currently has a fair amount of available capacity, and the few currently planned system upgrades enhance that available capacity. However, the Total Load Addition far outstrips available capacity (both current and planned capacity). As a consequence, there are three aspects of the normal study methodology that make it unworkable for this large load study:

1. First, plugging 1.621 GW into a relatively small part of the system in a power flow case is guaranteed to result in an unsolved case when attempting to solve for contingencies, if not when attempting to solve for normal system conditions, making it indiscernible what specific loading and voltage problems are occurring because of the Total Load Addition. Therefore, the study approach must be to break the total load being studied into manageable portions that will yield coherent load flow solutions, study each portion sequentially in a sequence that makes sense (e.g., pursuant to the priority established by the request queue), and develop/test viable system

upgrades as needed along the way that allow for coherent load flow solutions throughout the sequence of adding load portions.

2. Second, even with the approach described above for incrementally adding load to the cases and developing/testing system upgrades as needed to maintain coherent load flow solutions as more load portions are added, it is not practical to simulate the full set of pertinent NERC TPL-001 planning events during this portion of the study process. Doing so would unnecessarily slow the study process down to an unacceptable pace. To keep the study moving forward as fast as possible while producing study results that are critical for identifying both system upgrade projects and interim end-user load limits applicable before upgrade projects are constructed, the set of contingencies used for this portion of the study are limited to those contingencies where non-consequential load loss is not allowed either by the NERC TPL-001 standard or by ERCOT requirements. The set of contingencies used in this portion of the study are therefore:
    a. P0
    b. P1
    c. P3
    d. P7/ERCOT-1
    e. The set of contingencies outlined in Section 4 of the ERCOT Planning Guide
3. Third, the normal study methodology does not generally require any special mechanism outside of simple manual load scaling with manual AC solutions to identify interim end-user load limits applicable prior to construction of system upgrade projects. Due to the magnitude of the load being analyzed in this study and the large quantity of system upgrades needed at intermediate points in time as the load ramps up, a more sophisticated approach is required such as use of tools that calculate incremental transfer limits to shorten the study time to a reasonable timeframe.

Considering the aspects of this study described above, the scope of this study includes the following steady state components:

1. Identify system upgrades needed to serve the Total Load Addition while maintaining a secure system for P0, P1, P3, P7/ERCOT-1, and ERCOT PG4 operating conditions. The goal here is to identify:
    a. System upgrade projects necessary to accommodate the Total Load Addition that could feasibly be completed within a two-year timeframe. These are more likely to be projects that are limited in scope to TNMP-owned facilities and do not require ERCOT Regional Planning Group (RPG) endorsement (i.e., neutral and Tier 4 projects as defined in Section 3.11.4 of the ERCOT Protocols).
    b. Preliminary indications for system upgrade projects necessary to accommodate the Total Load Addition that would likely take more than two years to complete. These are less straight-forward system upgrade concepts that require further study outside the scope of this study and will likely be larger scale and longer lead projects that require RPG endorsement.
2. Identify interim load limits applicable to the Load Addition associated with P0, P1, P3, P7/ERCOT-1, and ERCOT PG4 operating conditions before the system upgrades identified above in Item #1 are implemented.

3. Screen for potential cascading events that would be triggered by selected P2/P4, P5, and P6 events within the timeframe before the large-scale projects identified above in Item 1a are in implemented (years 2022 and 2023) and at the interim load limits identified above in item #2.

Because TNMP anticipates the Total Load Addition will have an impact on the performance of the far West Texas system from a stability perspective (i.e., voltage stability, frequency overshoot, and/or power system swings), the scope of this study also includes stability simulations at load levels consistent with the interim load limits identified from the steady state portion of this study. The goal of these simulations is to identify any stability concerns assuming the following about the study system:

1. All system upgrades identified above in Item #1a are in place.
2. None of the conceptual projects identified above in Item #1b are in place.

The following are not within the scope of this study:

1. Studying system response to P2/P4, P5, and P6 events in longer range time-frames where large scale/long lead projects are expected to be identified to address system performance issues. These operating scenarios will be studied during TNMP's annual system assessment processes.
2. Confirming acceptable system stability performance at the Total Load Addition load level is not within the scope of this study. This level of study will be conducted at a later time as TNMP and neighboring transmission owners further develop larger scale system upgrade projects that allow for full accommodation of the Total Load Addition under the operating conditions simulated in this study.

3 Model Data

3.1 Steady State Data

3.1.1 Steady State Starting Cases

TNMP used the following ERCOT SSWG base cases, all dated February 2022, as a starting point for the most recent steady state simulations conducted for this study.

1. 2022 summer peak
2. 2022 summer off-peak
3. 2023 summer peak
4. 2024 summer peak
5. 2025 summer peak
6. 2025 minimum load

3.1.2 Steady State Benchmark Cases

Notable revisions applied to the starting cases to derive the benchmark cases include the following[2]:

1. Applied all off-cycle IDEVs dated through 5/4/22.
2. Various circuit impedance and rating corrections.

[2] Note – All battery energy storage facilities modeled within the study area were left out-of-service within all cases used for this study.

3. Various load adjustments to maintain consistency with latest load forecasting.

3.1.3 Steady State Change Cases

Notable revisions applied to the benchmark cases to derive the change cases include addition of the following for each of the nine end-user load requests comprising the Total Load Addition.

1. A new 138 kV bitcoin customer bus
2. A load set at 0.0 MW and 0.0 MVAR
3. A continuously controlled switched shunt set to control voltage at the benchmark P0 voltage of the corresponding TNMP POD station.
4. A zero-impedance branch between the bitcoin customer bus and corresponding TNMP POD station.

Numerous change cases were created to determine both (1) system upgrades needed to accommodate the eight end-user load requests and (2) load ramp limits that would be applicable on an interim basis before system upgrades are in place.

For all change cases, generation outside of the study area was scaled up to maintain the swing generator within its real power limit.

3.2 Stability Data

3.2.1 Stability Starting Case

TNMP used the 2024 summer peak and 2025 HWLL cases from the DWG 2022 flat start set dated 1/28/22 as a starting point for the most recent stability simulations conducted for this study.

3.2.2 Stability Benchmark Case

Notable revisions applied to both the 2024 summer peak and 2025 HWLL starting cases to derive the benchmark cases include the following:

1. Added four Tier 4 projects identified from the steady state study to be necessary for accommodating the Total Load Addition. These include:
    a. Upgrade the TNMP Wink – All American – Monument Draw – Cholla 138 kV line sections to 3000 Ampere.
    b. Cut the TNMP Wink – Bone Springs Tap 138 kV line section into the TNMP Cholla 138 kV station.
    c. Upgrade the TNMP Wink – Cholla 138 kV line to 3000 Ampere.
    d. Upgrade TNMP Wink – Oncor Wink 138 kV line #2 to 3000 Ampere.
2. Added the currently planned TNMP 138 kV stations Girvin, Holiday, and Alamo Street stations that will be within the study area.
3. Closed the Leon Creek – Tarbush 138 kV line.
4. TNMP utilized its own dynamic load models for the stability analysis (all PSSE CMLD models).

3.2.3 Stability Change Case

Notable revisions applied to the benchmark cases to derive the change cases include addition of the following for each of the four end-user load requests comprising the Total Load Addition.

1. A new 138 kV bitcoin customer bus
2. A load set at the limit identified in the steady state study to correspond with the applicable stability case (2024 summer peak and 2025 HWLL).
3. A discrete controlled switched shunt located at the POD and set at a susceptance capability identified from the steady state study.
4. A zero-impedance branch between the bitcoin customer bus and corresponding TNMP POD station.
5. UVLS relay modeled at the corresponding POD.
6. Overvoltage tripping relay for the switched shunt listed above in Item 3.
7. CMLD model representing a data center load

The specific Project load amounts studied in this analysis were:

1. 397 MW (Total Load Addition set at 1318 MW) in the 2024 summer peak case.
2. 234 MW (Total Load Addition set at 1023 MW) in the 2025 HWLL case.

For all change case versions, generation outside of the study area was scaled up to maintain the swing generator within its real power limit.

4 Study Methodology

4.1 Steady State Study Methodology

TNMP performed steady state simulations using the cases described in Section 3. For the first part of the study designed to identify upgrade projects and associated interim Project load limits, these simulations include the following operating scenarios within and adjacent to TNMP's West Texas North system.

1. P0
2. P1
3. P3
4. P7/ERCOT-1
5. The set of contingencies outlined in Section 4 of the ERCOT Planning Guide

Circuit loading within TNMP's West Texas North system and the surrounding ONCOR and AEP transmission systems were monitored and assessed according to the steady state planning criteria outlined in Section 5. Bus voltages within the TNMP West Texas North system were monitored and assessed according to the steady state planning criteria outlined in Section 5.

During the steady state study process, TNMP tested various system upgrade solutions for resolving thermal loading constraints observed within the TNMP transmission system. Additionally, TNMP tested the stage 2 Upgrade project (345-kV double circuit line from Bearkat to North McCamey to Sand Lake) identified from the ERCOT Delaware Basin Load Integration study against numerous constraints identified external to TNMP affecting Oncor-owned transmission lines.

Lastly, TNMP simulated selected P2/P4, P5, and P6 events to test system performance at the various interim Project load limits. The specific P2/P4, P5, and P6 events that were simulated along with the selection rationale are documented below in Table 4-1.

Table 4-1: P2/P4, P5, and P6 Events Simulated at Various Project Load Limits

Category	Event Description	Selection Rationale
P2/P4	Internal fault or failure of IH20 breaker 138-187, which takes out (a) IH20 – Elm Street 138 kV and (b) IH20 – Salt Draw – Saddleback 138 kV.	IH20 is one of the two "hub" stations within the immediate study area where multiple network elements terminate. This event is thought to be the worst P2/P4 at IH20 station.
P2/P4	Internal fault or failure of Cedarvale breaker 139-257, which takes out (a) Cedarvale – Sand Lake 138 kV line #1 and (b) Cedarvale - Pecos 138 kV line #1.	Cedarvale is one of the two "hub" stations within the immediate study area where multiple network elements terminate. This event is thought to be the worst P2/P4 at Cedarvale station.
P5	Failure of a non-redundant relay protecting one of the two 138 kV buses at AEP Pig Creek station. Results in remote tripping all 138 kV lines terminated at Pig Creek.	The only known P5 within the immediate study area.
P6	All N-1-1 permutations of the following list of 138 kV circuits: (1) Wink – All American Pipeline – Monument Draw – Fishhook (2) Wink – Fishhook (3) Cedarvale – Sand Lake #1 (4) Cedarvale – Sand Lake #2 (5) Wickett – Staghorn (6) Flat Top - Foxtail	All listed lines are network feeds into the study area. Previous steady state studies show these lines to be loaded the heaviest when combinations of two other circuits in the list are out of service and the worst-case P6 conditions to consider.

4.2 Stability Study Methodology

To identify any adverse impacts to study area voltage stability, power system swings, and system frequency overshoot, TNMP performed stability simulations of the events listed below in Table 4-2.

Table 4-2: Events for Stability Simulations

Category	Fault Type	Event Description	Selection Rationale
Redacted			
Redacted			

The following output channels were monitored and assessed according to the stability planning criteria outlined in Section 5:

1. Rotor angles for all online synchronous machines within the ERCOT Interconnection.
2. Bus voltages for all TNMP far West Texas transmission buses.
3. Bus voltages for key far West Texas 345 kV stations.
4. Real power flows on the following 345 kV lines (for the P7.1 event only):
    a. **Redacted**
    b. **Redacted**
    c. **Redacted**
5. Frequency at the Comanche Peak 345 kV bus.

5 Applicable Planning Criteria

5.1 Steady State Planning Criteria

Steady state planning criteria applied in the analysis are listed below in Table 5-1.

Table 5-1: Steady State Planning Criteria for 138 kV, 69 kV, and Facilities Operated at 66 kV

NERC or ERCOT Defined Event	Circuit Loading Limit	Bus Voltages (per-unit of nominal operating voltage)		Non-Consequential Load Loss Allowed
		Min	Max	
P0	Rate A	0.95	1.05 (138 and 69 kV) 1.1 (66 kV)	No
P1	Rate B	0.9	1.05 (138 and 69 kV) 1.1 (66 kV)	No
P2.1	Rate B	0.9	1.05 (138 and 69 kV) 1.1 (66 kV)	No
P2.3	Rate B	0.9	1.05 (138 and 69 kV) 1.1 (66 kV)	Yes
P3	Rate B	0.9	1.05 (138 and 69 kV) 1.1 (66 kV)	No
P4	Rate B	0.9	1.05 (138 and 69 kV) 1.1 (66 kV)	Yes
P5	Rate B	0.9	1.05 (138 and 69 kV) 1.1 (66 kV)	Yes
P6	Rate B	0.9	1.05 (138 and 69 kV) 1.1 (66 kV)	Yes
ERCOT-1[3]	Rate B	0.9	1.05 (138 and 69 kV) 1.1 (66 kV)	No
P7.1	Rate B	0.9	1.05 (138 and 69 kV) 1.1 (66 kV)	No[4]
ERCOT PG4	Rate B	0.9	1.05 (138 and 69 kV) 1.1 (66 kV)	No

5.2 Stability Planning Criteria

The following stability planning criteria were applied in the analysis:

1. Bus voltages should recover to at least 90% of pre-disturbance voltage within five (5) seconds after clearing the fault, or after inception of the event for the scenario where no fault occurs.
2. Post-disturbance frequency should remain below 60.4 Hz.
3. Power oscillations should decay with a minimum of 3% damping ratio.

6 Assumptions

1. All battery energy storage facilities within the study area are offline.
2. All proposed bitcoin end-user facilities will ramp at the schedules provided to TNMP.

[3] ERCOT-1 events are defined in Table 1 of Section 4 in the ERCOT Planning Guide.
[4] The NERC Category P7.1 event is equivalent to the ERCOT-1 event defined in Table 1 of Section 4 of the ERCOT Planning Guide, which does not allow for non-consequential load loss.

3. Although the data center loads considered in this study will likely operate at a power factor somewhat better than 0.95 lagging, the conservative approach taken in this study assumes all new data center loads will operate at worst case 0.95 lagging power factor.
4. Adequate resources within the ERCOT Interconnection will be available to meet data center ramp schedules as forecasted in Table 2-1.
5. No other significantly large loads are planned within the Oncor or AEP transmission systems within the study area.
6. Application of UVLS at bitcoin sites will utilize a trip delay of 30 seconds.
7. Existing industrial motor loads within TNMP's West Texas transmission system have protection settings such that motor load trips on undervoltage conditions after the 30 second timeframe for UVLS protection, which is the most conservative assumption.

7 Study Results

7.1 Summary of Steady State Results

7.1.1 Identified System Upgrades and Project Load Limits

The steady state results indicate a total of 480 MVAR static reactive support will be needed at the POD to maintain healthy transmission voltages in the study area. The reactive support will need to be divided into multiple stages to provide for acceptable post-switching voltage differential. Simulations indicate switching 120 MVAR at the POD with the Load Addition interconnected results in 1% post-switching voltage delta during peak load conditions and 1.19% post-contingency voltage delta for off-peak conditions. Therefore, four blocks of 120 MVAR will suffice.

System improvement projects needed to serve the Load Addition and corresponding load limits are summarized below in Table 7-1. It is important to note the limits are based on a snapshot in time simulations and do not intend to provide any insight into the hourly performance of the proposed load and the congestion/curtailment risks therein.

Table 7-1: Steady State Results Summary

Case	Load Limit (MW)*	Contingency Category	Required System Improvement
22SP	170	X-1, ERCOT-1	Cut line D into Cholla station**
22OP	0	X-1, ERCOT-1	Oncor to build new Consavvy switching station with two 345-138 kV transformers.
22OP	173	X-1, ERCOT-1	Cut line D into Cholla station**
22SP 23SP	237	X-1, ERCOT-1	Upgrade Wink – All American – Monument Draw 138 kV line sections
23SP	397	G-1, ERCOT-1	Oncor to upgrade Wolf – Moss 138 kV line
23SP 24SP 25SP	397	X-1, ERCOT-1	345 kV interconnection at Cedarvale (overload of remaining Sand Lake 345-138 kV transformer)
23SP 24SP 25SP	397	X-1, ERCOT-1	Stage 2 of the Delaware Basin Load Integration Study (Odessa 345-138 kV transformer #2 overload and other wide area constraints)
25OP	234***	X-1, ERCOT-1	Stage 2 of the Delaware Basin Load Integration Study (Odessa 345-138 kV transformer #2 overload and other wide area constraints)

* Total load at the site to be served from the planned transmission POD as well as from distribution level service.
** The Wink – Bone Springs – Cedarvale 138 kV line sections are referred to as Line D.
*** The reason this limit is significantly higher than zero in the 2025 Off-Peak case (a zero limit was observed in the 2022 Off-Peak case as shown in this table) is believed to be the presence of Oncor's Consavvy 345-138 kV switching station that loops several 345 kV and 138 kV lines together in the Odessa area. The in-service date for this project is currently set at December 2022. See the RPG submittal "Oncor Consavvy 345/138 kV Switch Project" for detailed information.

7.1.2 P2/P4, P5, and P6 Event Results

Table 7-2 shows the most severe P2/P4, P5, and P6 system loading results. None of the simulated scenarios are expected to result in cascading outages.

Table 7-2: Notable P2/P4, P5, and P6 System Loading Results

Category	Year	Contingency Description	Overloaded Element	Relay Loadability Limit (MVA)	Percent Loaded on Relay Loadability Limit
P6.1.1	22	Cedarvale – Sand Lake 138 kV line #1 Cedarvale – Sand Lake 138 kV line #2	Wink – AA Pipeline 138 kV	952	33.1
P6.1.1	22	Cedarvale – Sand Lake 138 kV line #1 Cedarvale – Sand Lake 138 kV line #2	Wink – Cholla 138 kV	952	27.9
P6.1.1	22	Cedarvale – Sand Lake 138 kV line #1 Cedarvale – Sand Lake 138 kV line #2	Cholla – Monument Draw 138 kV	952	27.8
P6.1.1	22	Flat Top – Pig Creek 138 kV Cedarvale – Sand Lake 138 kV line #2	Cedarvale – Sand Lake 138 kV line #1	952	65.1
P6.1.1	22	Flat Top – Pig Creek 138 kV Cedarvale – Sand Lake 138 kV line #1	Cedarvale – Sand Lake 138 kV line #2	952	65.2
P6.1.1	23	Flat Top – Foxtail 138 kV Cedarvale – Sand Lake 138 kV line #2	Cedarvale – Sand Lake 138 kV line #1	952	81.2

Table 7-2: Notable P2/P4, P5, and P6 System Loading Results

Category	Year	Contingency Description	Overloaded Element	Relay Loadability Limit (MVA)	Percent Loaded on Relay Loadability Limit
P6.1.1	23	Flat Top – Foxtail 138 kV Cedarvale – Sand Lake 138 kV line #1	Cedarvale – Sand Lake 138 kV line #2	952	81.5

7.2 Steady State Results Discussion

Local TNMP Area Thermal Loading Issues

The Project contributes to post-contingency overload of the following 138 kV lines between Cedarvale and Wink stations:

1. Wink – All American – Monument Draw – Cholla
2. Cedarvale – Mi Vida
3. Mi Vida – Cholla

TNMP's plan to address these issues is to:

1. Cut the Wink – Bone Springs 138 kV line section into the Cholla station. Estimated in-service date of 12/1/22.
2. Upgrade the Wink – All American – Monument Draw – Cholla 138 kV line to 3000 Ampere. Estimated in-service date of 6/1/23.
3. Upgrade the Wink – Cholla section of the cut-in from item 2 above to 3000 Ampere. Estimated in-service date of 3/1/23.

In the interim before a system upgrade project is in place, the Project is subject to a limit as low as 170 MW in anticipation of the next X-1, ERCOT-1 contingency.

As the Total Load Addition ramps upward, the Project is the primary contributor to significant constraints associated with the interconnection between Oncor Sand Lake station and TNMP Cedarvale station. These constraints appear as P1.2/P2.1 overloads of the two Cedarvale – Sand Lake 138 kV lines and P1.3 overloads of the two Sand Lake 345-138 kV transformers as the Total Load Addition ramps higher. TNMP's plan to address these issues is to implement a 345 kV interconnection at the TNMP Cedarvale station. Two options for accomplishing this are:

1. Construct a double circuit 345 kV line from Oncor Sand Lake to a new 345 kV Cedarvale switchyard, or
2. For the future double circuit North McCamey – Sand Lake 345 kV component of the proposed Stage 2 upgrade identified in the Delaware Basin Load Integration study, cut both North McCamey – Sand Lake 345 kV lines into a new 345 kV Cedarvale switchyard.

With either of the above two options, TNMP's studies indicate two 345-138 kV transformers will be needed at Cedarvale to accommodate the full build out of the Total Load Addition. This is a major system upgrade that will require RPG review and endorsement. TNMP estimates the earliest this project can be

implemented is late 2024. In the interim before a system upgrade project is in place, the Project is subject to a limit as low as 397 MW in anticipation of the next X-1, ERCOT-1 contingency.

Local TNMP Area Voltage Issues

To maintain P0 voltages at benchmark levels, simulations indicate a total of 480 MVAR reactive support will be needed at the POD in four stages of 120 MVAR.

Wide Area Thermal Loading Issues

The three 345-138 kV transformers at Oncor's Odessa switching station are post-contingency overloaded in the 2022 Off-Peak benchmark case, meaning the Project will be limited to zero in the Off-Peak scenarios (at night when local solar plants are unavailable) until the appropriate upgrade project is put in place to address the post-contingency overloads. The specific contingencies that result in the overloads are X-1 loss of one Odessa 345-138 kV transformer followed by ERCOT-1 loss of Odessa – Moss 345 kV and Odessa – Wolf 345 kV.

This set of post-contingency overloads will apparently be resolved by Oncor's planned Consavvy 345-138 kV switching station project, currently projected to be in-service by December 2022.

Even with the Consavvy 345-138 kV switching station project, the Project imposes post-contingency overloads of 345-138 kV transformer #2 at Oncor's Odessa switching station and underlying 138 kV network as the Project ramps above 234 MW during the Off-Peak scenario when local solar plants are unavailable. The specific contingencies that result in the overloads are X-1 loss of Odessa 345-138 kV transformer #1 or #3 followed by ERCOT-1 loss of Odessa – Moss 345 kV and Odessa – Wolf 345 kV.

This set of constraints are remedied by the Stage 2 Upgrade identified from the Delaware Basin Load Integration study, currently slated for an in-service date of June 2026.

Post-contingency overload of Oncor's Wolf – Moss 138 kV line is expected during peak loading conditions as the Project ramps above 397 MW toward the end of summer 2023. This constraint will be resolved after Oncor rebuilds the Wolf – Moss 138 kV line, currently slated to be completed in December 2023.

Lastly, the Project imposes post-contingency overloads of 345-138 kV transformer #2 at Oncor's Odessa switching station and underlying 138 kV network as the Project ramps above 397 MW during peak loading conditions. The specific contingencies that result in the overloads are X-1 loss of Odessa 345-138 kV transformer #1 or #3 followed by ERCOT-1 loss of Odessa – Moss 345 kV and Odessa – Wolf 345 kV.

This set of constraints are remedied by the Stage 2 Upgrade identified from the Delaware Basin Load Integration study, currently slated for an in-service date of June 2026.

7.3 Stability Results Summary

The following stability simulation plots are provided in the appendices of this report:

1. Appendix A – Rotor angle, bus voltage, and frequency response for **Redacted**. 2024 summer peak case.
2. Appendix B – Rotor angle, bus voltage, real power swings across **Redacted**, and frequency response for **Redacted**. 2024 summer peak case.

3. Appendix C – Rotor angle, bus voltage, and frequency response for **Redacted**. 2025 high wind/low load case.
4. Appendix D – Rotor angle, bus voltage, real power swings across **Redacted**, and frequency response for **Redacted**. 2025 high wind/low load case.

7.4 Stability Results Discussion

None of the stability simulations indicate any system performance issues with the Project operating at a load level of 397 MW (Total Load Addition operating at 1318 MW) in the 2024 summer peak case nor with the Project operating at a load level of 234 MW (Total Load Addition set at 1023 MW) in the 2025 HWLL case. Key takeaways are:

1. No angular stability issues were observed.
2. The simulations indicate introduction of large load data centers within the study area significantly worsen system low voltages that occur post-fault due to stalling of native industrial motors and will require installation of UVLS at the POD of each large load data center.
3. Due to the large amount of static reactive support required at the Project POD and at the other eight large load PODs included in this study, over-voltages within the study area can occur during load rejection scenarios depending on the magnitude of load loss. The magnitude of the load loss is a function of the transmission voltages during a system event and the timing of tripping native industrial motor load during undervoltage/stalled motor conditions versus timing of UVLS tripping of large data center loads during those events.

   The simulations conducted in this study indicate a more favorable scenario, at least at the load levels simulated in this study, is when native industrial motor load trips faster than the 35 cycle timeframe TNMP would need to use for UVLS tripping of large data center loads (30 cycle delay plus 3 to 5 cycle breaker time). In this scenario, the simulations indicate fast tripping of stalled motors corrects transmission voltages enough to preclude UVLS tripping of some or all large data center loads.

   On the other hand, the simulations indicate the worst-case scenario for maximum load loss would be where large data center loads trip offline via UVLS before or concurrently with motor protection significantly removing stalled motors from the system. The simulations show these over-voltages can get very high. Nonetheless, the simulations indicate these over-voltages can be mitigated in an automatic manner with over-voltage tripping of the static reactive support. This is demonstrated in the voltage plots provided in Appendices A and C.
4. There are no voltage stability or real power oscillation issues involved with **Redacted**, which is thought to be the worst case P7 contingency within the study area.
5. There are no expected frequency response issues associated with load rejection. Frequency remains well within the 60.4 Hz criteria utilized within the ERCOT Interconnection with loss up to 397 MW during summer peak and loss up to 234 MW during off-peak at the Project site.
6. It will be necessary to conduct similar stability simulations at higher aggregate data center load levels, ultimately at the Total Load Addition, as TNMP and other TSPs develop system upgrade projects that allow for operation at load levels beyond the limits identified in this study.

8 Conclusions

The steady state results indicate a total of 480 MVAR static reactive support, in four blocks of 120 MVAR, will be needed at the POD to maintain healthy transmission voltages.

The steady state results indicate numerous transmission system upgrades are needed to accommodate the Total Load Addition. Corresponding load limits have been identified as part of the study process. It is important to note the limits presented in this study are based on a snapshot in time simulations and do not intend to provide any insight into the hourly performance of the proposed load and the congestion/curtailment risks therein.

System improvements needed within TNMP's transmission system to accommodate the Total Load Addition, estimated timing of those projects, and associated most constraining Project load limit are summarized below in Table 8-1.

Table 8-1: TNMP System Improvements Identified

System Improvement	Estimated Timing	Project Load Limit (MW)	Day/Night Constraint
Cut Wink – Bone Springs 138 kV line into Cholla station	12/1/22	170	Day
Oncor to build new Consavvy switching station with two 345-138 kV transformers.	Dec 2022	0	Night
Cut Wink – Bone Springs 138 kV line into Cholla station	12/1/22	173	Night
Upgrade Wink – All American – Monument Draw – Cholla 138 kV line to 3000 Ampere	6/1/23	237	Both
Oncor to upgrade Wolf – Moss 138 kV line	Dec 2023	397	Day
345 kV interconnection at Cedarvale	Mid 2025	397	Both
Bearkat – North McCamey – Cedarvale/Sand Lake 345 kV double circuit line	Jun 2026	397	Day
Bearkat – North McCamey – Cedarvale/Sand Lake 345 kV double circuit line	Jun 2026	234	Night

TNMP performed stability simulations of (1) load reject scenario involving the Project load and (2) the critical most contingency identified from previous steady state analyses to result in post-contingency voltage collapse within the far West Texas system at higher load levels than were simulated in this study. The stability simulations were performed for the peak and off-peak scenarios with all minor system upgrades but none of the RPG level system upgrades identified from the steady state analysis. The Project load was set at 397 MW (Total Load Addition operating at 1318 MW) in the 2024 summer peak case and at a load level of 234 MW (Total Load Addition set at 1023 MW) in the 2025 HWLL case. UVLS was simulated at each of the four PODs serving the proposed end-user facilities. Conclusions from the stability analysis are as follows:

1. No angular stability issues were observed.
2. The simulations indicate introduction of large load data centers within the study area significantly worsen system low voltages that occur post-fault due to stalling of native industrial motors and will require installation of UVLS at the POD of each large load data center.
3. Significant over-voltages can occur depending on the timing of tripping stalled motors at the various industrial load sites within TNMP's West Texas systems during undervoltage conditions versus the timing of UVLS tripping for large data center loads. However, the simulations indicate these over-voltages can be rapidly mitigated through the use of over-voltage tripping of capacitor banks specified for installation at the various PODs for large data center loads.

4. There are no voltage stability or real power oscillation issues involved with **Redacted**, which is thought to be the worst case P7 contingency within the study area.
5. There are no expected frequency response issues associated with load rejection. Frequency remains well within the 60.4 Hz criteria utilized within the ERCOT Interconnection with loss up to 397 MW during summer peak and loss up to 234 MW during off-peak at the Project site.
6. It will be necessary to conduct similar stability simulations at higher aggregate data center load levels, ultimately at the Total Load Addition, as TNMP and other TSPs develop system upgrade projects that allow for operation at load levels beyond the limits identified in this study.

9 Appendix A – Stability Plots, Redacted

Plot redacted

Plot redacted

Plot redacted

10 Appendix B – Stability Plots, Redacted

Plot redacted

Plot redacted

Plot redacted

Plot redacted

11 Appendix C – Stability Plots, Redacted

Plot redacted

Plot redacted

Plot redacted

12 Appendix D – Stability Plots, Redacted

Plot redacted

Plot redacted

Plot redacted

Plot redacted

From: Gerety, Christopher
To: Tyler Randolph; Carol Haines
Cc: John Bick; Roberts, Vincent; Hitchcock, Nicole
Subject: Re: [External] Re: Core Updated Ramp Schedule for ERCOT - cap banks?
Date: Monday, September 26, 2022 5:35:30 PM
Attachments: image001.png

The first cap bank is ready and is being prepared to be switched in this evening.

Vincent is following up with ercot ontheir study review. Seems like everyone was tied up in the LFLTF meeting today so it may be tomorrow before we get their latest feedback.

Chris Gerety
505-280-3310

From: Gerety, Christopher
Sent: Monday, September 26, 2022 4:11:26 PM
To: Tyler Randolph <trandolph@prioritypower.com>; Carol Haines <chaines@corescientific.com>
Cc: John Bick <jbick@prioritypower.com>; Roberts, Vincent <Vincent.Roberts@tnmp.com>; Hitchcock, Nicole <Nicole.Hitchcock@tnmp.com>
Subject: RE: [External] Re: Core Updated Ramp Schedule for ERCOT - cap banks?

Nicole is out of pocket this week. I will check and let you know.

From: Tyler Randolph <trandolph@prioritypower.com>
Sent: Monday, September 26, 2022 4:09 PM
To: Gerety, Christopher <Christopher.Gerety@tnmp.com>; Carol Haines <chaines@corescientific.com>
Cc: John Bick <jbick@prioritypower.com>; Roberts, Vincent <Vincent.Roberts@tnmp.com>; Hitchcock, Nicole <Nicole.Hitchcock@tnmp.com>
Subject: Re: [External] Re: Core Updated Ramp Schedule for ERCOT - cap banks?

All, Nicole indicated Friday that cap & breaker 1 would be complete today. Did that occur? Needing an update for Core. Thanks all!

Tyler Randolph
Priority Power Management
Sr. Director, Business Development | Power Consultant
8000 Fair Oaks Pkwy, STE 201 | Boerne, TX 78015
C: 214.957.7032

From: Gerety, Christopher <Christopher.Gerety@tnmp.com>
Sent: Wednesday, September 21, 2022 11:47:02 AM
To: Carol Haines <chaines@corescientific.com>; Tyler Randolph <trandolph@prioritypower.com>
Cc: John Bick <jbick@prioritypower.com>; Roberts, Vincent <Vincent.Roberts@tnmp.com>; Hitchcock, Nicole <Nicole.Hitchcock@tnmp.com>
Subject: RE: [External] Re: Core Updated Ramp Schedule for ERCOT - cap banks?

[EXTERNAL ORIGIN – do not open attachments or links until sender and content are confirmed safe]

Latest and greatest from the field is 9/30 to energize the first bank.

I need to follow up on the ERCOT review status from our submission last week.

Will let you know as soon as I have those details.

Thanks
Chris
505-280-3310

From: Carol Haines <chaines@corescientific.com>
Sent: Wednesday, September 21, 2022 11:44 AM
To: Gerety, Christopher <Christopher.Gerety@tnmp.com>; Tyler Randolph <trandolph@prioritypower.com>
Cc: John Bick <jbick@prioritypower.com>; Roberts, Vincent <Vincent.Roberts@tnmp.com>; Hitchcock, Nicole <Nicole.Hitchcock@tnmp.com>
Subject: RE: [External] Re: Core Updated Ramp Schedule for ERCOT - cap banks?
Importance: High

Hi Chris,

Just checking in to see if you can provide an update on the installation of the capacitor banks. Any update you can provide would be greatly appreciated.

Thanks,

CAROL HAINES
SVP POWER & SUSTAINABILITY
Core Scientific
chaines@corescientific.com
440.532.0057

From: Gerety, Christopher <Christopher.Gerety@tnmp.com>
Sent: Thursday, September 15, 2022 5:59 PM
To: Tyler Randolph <trandolph@prioritypower.com>; Carol Haines <chaines@corescientific.com>
Cc: John Bick <jbick@prioritypower.com>; Roberts, Vincent <Vincent.Roberts@tnmp.com>; Hitchcock, Nicole <Nicole.Hitchcock@tnmp.com>
Subject: Re: [External] Re: Core Updated Ramp Schedule for ERCOT - cap banks?

All, we have just now provided the answers to the two questions we believe will allow ercot to provide approval. I will let you know when we get their response and what it is.

As far as the field side, 9/30 is still a good date to energize the first capacitor bank

Thank you

Chris Gerety
505-280-3310

From: Gerety, Christopher <Christopher.Gerety@tnmp.com>
Sent: Wednesday, September 14, 2022 5:08:23 PM
To: Tyler Randolph <trandolph@prioritypower.com>; Carol Haines <chaines@corescientific.com>
Cc: John Bick <jbick@prioritypower.com>; Roberts, Vincent <Vincent.Roberts@tnmp.com>; Hitchcock, Nicole <Nicole.Hitchcock@tnmp.com>
Subject: Re: [External] Re: Core Updated Ramp Schedule for ERCOT - cap banks?

Negative. We met with ercot this afternoon to clarify a few details and we are still analyzing based on their feedback. As soon as I have a sense of timing, I will let you know.

Chris Gerety
505-280-3310

From: Tyler Randolph <trandolph@prioritypower.com>
Sent: Wednesday, September 14, 2022 5:03:42 PM
To: Gerety, Christopher <Christopher.Gerety@tnmp.com>; Carol Haines <chaines@corescientific.com>
Cc: John Bick <jbick@prioritypower.com>; Roberts, Vincent <Vincent.Roberts@tnmp.com>; Hitchcock, Nicole <Nicole.Hitchcock@tnmp.com>
Subject: RE: [External] Re: Core Updated Ramp Schedule for ERCOT - cap banks?

Chris,

Checking to see if this went out the door?

Thank you,

Your Trusted Energy Advisor

Tyler W. Randolph
Sr. Director, Business Development | Power Consultant

8000 Fair Oaks Pkwy, STE 201 | Boerne, TX 78015
C: 214.957.7032

trandolph@prioritypower.net
www.prioritypower.net

From: Gerety, Christopher <Christopher.Gerety@tnmp.com>
Sent: Wednesday, September 14, 2022 10:39 AM
To: Tyler Randolph <trandolph@prioritypower.com>; Carol Haines <chaines@corescientific.com>
Cc: John Bick <jbick@prioritypower.com>; Roberts, Vincent <Vincent.Roberts@tnmp.com>; Hitchcock, Nicole <Nicole.Hitchcock@tnmp.com>
Subject: RE: [External] Re: Core Updated Ramp Schedule for ERCOT - cap banks?

[EXTERNAL ORIGIN – do not open attachments or links until sender and content are confirmed safe]

We were not.

The remaining issue is Ercot's reluctance to TSPs using Under Voltage Load Shedding (UVLS) for large load customers to solve voltage collapse upon contingency like we would with all other loads across the system.

Because they wont allow the use of UVLS for the time being, we are having to re-run load limits to ensure we can solve contingencies without the use of UVLS which has become tedious.

We are pushing to wrap up that analysis today and get the supporting documentation over to ERCOT so they can finalize their review.

From: Tyler Randolph <trandolph@prioritypower.com>
Sent: Wednesday, September 14, 2022 10:23 AM
To: Gerety, Christopher <Christopher.Gerety@tnmp.com>; Carol Haines <chaines@corescientific.com>
Cc: John Bick <jbick@prioritypower.com>; Roberts, Vincent <Vincent.Roberts@tnmp.com>; Hitchcock, Nicole <Nicole.Hitchcock@tnmp.com>
Subject: RE: [External] Re: Core Updated Ramp Schedule for ERCOT - cap banks?

Chris,

Were you bale to get final answers to ERCOT by COB yesterday?

Thank you**,**

Your Trusted Energy Advisor

Tyler W. Randolph
Sr. Director, Business Development | Power Consultant

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C: 214.957.7032
trandolph@prioritypower.net
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From: Gerety, Christopher <Christopher.Gerety@tnmp.com>
Sent: Tuesday, September 13, 2022 3:55 PM
To: Carol Haines <chaines@corescientific.com>
Cc: John Bick <jbick@prioritypower.com>; Tyler Randolph <trandolph@prioritypower.com>; Roberts, Vincent <Vincent.Roberts@tnmp.com>; Hitchcock, Nicole <Nicole.Hitchcock@tnmp.com>
Subject: RE: [External] Re: Core Updated Ramp Schedule for ERCOT - cap banks?

[EXTERNAL ORIGIN – do not open attachments or links until sender and content are confirmed safe]

As of today, we are still targeting 9/30 for the first bank. We are also pushing to get the final answers to Ercot's planning study questions back by COB today.

I will keep pushing to get information out of the field and over to you both as soon as it is sent to me.

Thanks
Chris

From: Carol Haines <chaines@corescientific.com>
Sent: Tuesday, September 13, 2022 3:52 PM
To: Gerety, Christopher <Christopher.Gerety@tnmp.com>
Cc: John Bick <jbick@prioritypower.com>
Subject: [External] Re: Core Updated Ramp Schedule for ERCOT - cap banks?

****
****

Chris
As a follow up to Tyler's email below I also want to check in on the status of the cap bank project. Just looking for a status update. Are you still on track for the first cap bank to be complete by 9/19?

Thanks
Carol

On Sep 13, 2022, at 1:26 PM, Tyler Randolph <trandolph@prioritypower.com> wrote:

[EXTERNAL] Use caution when opening attachments or links.

Chris,

ERCOT indicated that they are waiting on TNMP to update the ramp schedule in Section 8.1 of the studies that were submitted for Core so that they can approve capacity. Can you please send them that today? If not today, when can you commit to having this over to them as it seems to be a pretty straight forward ask per Bill Belvins.

We are at the cusp of capacity approvals, and are begging for TNMP's support in getting them the info they need to finalize. Thank you in advance.

Thank you**,**

Your Trusted Energy Advisor

Tyler W. Randolph
Sr. Director, Business Development | Power Consultant

image003.jpg

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